

## ***Interactive comment on “Characteristics of cold-warm variation in the Hetao region and its surrounding areas in China during the past 5000 yr” by M. Li et al.***

**Anonymous Referee #3**

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In "Characteristics of cold-warm variation in the Hetao region and its surrounding areas in China during the past 5000 yr", the authors introduce a integrate temperature proxy in past 5000 yr derived from different pollens and lake sediment. Although the method seems to have performed ok, I am not sure that it has been exercised enough to be published in CP. Here are a few basic comments that could guide the authors to submit a more detailed manuscript. 1. For the temperature reconstruction, it is very important that the proxy can represent the temperature changes, but the variations of the total organic carbon in loess section, magnetic susceptibility and carbonate content in lake sediment are not only affected by temperature, but also by precipitation. So the authors should give the evidences to support the changes of these proxies due to temperature.

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2. For the time resolution, it is based on the sampling of interval in profile and the flux of sediment, not the data interpolation. Generally, the loess profile could be used for 1000 yr resolution on climate changes because of the erosion by surface water, not enough for the 100 yr resolution. 3. For the conclusion about "on the century to multi-century scale. . . . Did not occur simultaneously in different regions" in the last section. Why? Please add more discussion on it.

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Interactive comment on Clim. Past Discuss., 6, 1, 2010.